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In late April of 2010, Deepwater Horizon, an oil-drilling rig located in the Gulf of Mexico, exploded and unleashed millions of gallons of unrefined, crude oil, into Gulf waters. The oil released by the rig, influenced in large part by oceanic currents and cross winds, eventually reached several coastlines in states immediately bordering the Gulf, including but not limited to Louisiana, Alabama, Mississippi, and Florida. After nearly ninety days, the rig was capped, but not without catastrophic environmental damage. A number of wildlife populations in the region were decimated, coastal plants became weaker and, generationally, much more prone to genetic mutation, and even human populations became prone to a variety of diseases as a result of oil affected seafood populations. As a result of the disaster, attitudes among Gulf coastal citizens about their coastlines, the malleability of such, and the coastlines, overall reliability as a life giving source began to change. Effects of the spill have become most apparent where much larger percentages of oil made landfall. The Louisianan coastline, therefore, is a perfect case study to explore the effects of the spill and the changing attitudes of coastal dependence that followed. Looking first at pre-spill coastal settlements, lifestyles, and pre-spill attitudes of coastal living provides a foundation for comparing the subsequent attitudinal shift that results from the spill's catastrophic effects.

In this paper, I will argue that the Deepwater Horizon oil spill severely weakened Louisianan coastal community cohesiveness and place, ushering in a widespread attitudinal shift in coastline sustainability and reliability.

The first residents and settlers of the Louisianan coastal region noted its life-giving qualities and inherent beauty. Aboriginal populations, who had inhabited the region for ten to twelve thousand years prior to European discovery of the "New World" in the early 17th century, maintained relatively high standards of living that resulted from widespread vegetative growth alongside large and healthy wildlife populations.[1] There was a noted abundance of plants by aboriginal populations—fruits, fungi, greens, and nuts—as well as backwater bayous that provided crawfish, oysters and clams, and in the winter, various species of birds. The productivity and sustainability of the region are two of the features that made the Louisianan Delta so attractive to European settlers and explorers. As a result, and as early as the first years of the 1700s, an economy based in pelt trade and food exchange developed. As decades turned into centuries and the development of the region slowly progressed, so did the need to manipulate the environment to best fit human needs and preferences. Whereas environmental manipulation on an industrial scale was not at the forefront of the regions development prior to the early 1900s, the discovery of petroleum in 1901 provided the basis for rapid economic expansion and the need for greater efforts to quickly and, somewhat recklessly,

change the region's natural landscape. Alterations, including the construction of levees and other barriers that facilitate the flow of water, added to the environmental and economic productivity of the Louisianan Delta region, yet greatly exposed mass amounts of unprotected vegetation to the harsh extremes of the Louisianan weather cycle. Though these projects are most often noted as accelerating factors to coastal deterioration, they do provide a basis for a relationship of coastal citizens to their environment in that, despite the coastline's life-giving qualities and natural ambience, it was profitable, and was seen as a source of economic stability via oil extraction as early as 1901. Therefore, in the centuries and decades prior to the Deepwater spill in April 2010, the Louisianan delta region was, despite environmental manipulations primarily meant to facilitate oil extraction, a flourishing and ecologically healthy habitat.

One primary indicator of the health of any coastline is the amount and variety of wildlife species present there—and coastal Louisiana was no exception. Fisheries were not simply in the region for show, they were a viable means of economic stability and productivity. The same also holds true for shrimping, oyster harvesting, and various other fishing industries that extract marine wildlife for monetary profit—their existence was a result of large and healthy marine populations in the Louisianan coastal region. Tourist activity is also a significant indicator of the health of any coastal region—with traditionally higher rates of Louisianan tourism indicating higher rates of coastal health and stability. Statistics show that pre- and post-

spill rates and coastal tourism varied significantly, with the volume of tourists dwindling in years after the spill. The official Louisiana Tourism Forecast extended from 2015 to 2018 cites eleven times in its forty-five pages the adverse effects that the spill had on tourism, specifically noting that traditional tourists, typically thought of as the region's most loyal, left in the years immediately following the spill.[2] Therefore, there exists evidence via tourist statistics to suggest a post-spill attitudinal shift in regards to the safety of the region. Despite the fact, the Louisianan coastal regions were environmentally healthy, as is seen through wildlife diversity, the presence and variety of coastal fisheries, and through consistent levels of tourist activity and spending.

The Deepwater Horizon oil-rig exploded as a result of a build-up of methane gas in its primary oil well pipe.[3] Two days later, the rig sunk to the ocean floor and eleven employees, who at the time were missing, were soon after presumed dead. In the following weeks and months, it was discovered that there were multiple "precursors" that allowed the rig to explode in the severity and scope that it eventually did (27). Numbering ten in total, the precursors include but are not limited to unfamiliar cement types used by workers, ignored warning signs of methane gas buildup, and a faulty emergency response plan implemented by British Petroleum (BP) for the Deepwater rig (27). For context, BP had a longstanding presence in the Gulf region, working with and in coastal communities since the early 1950s while simultaneously providing hundreds of thousands of jobs across five Gulf states.[4] The explosion is noted as the first major disruption in operation

activity.[5] All major news media outlets subsequently covered the events and sought to answer one primary question: how and why did this event happen? A few weeks after the explosion, multiple investigations were initiated, by both Congress and BP, searching into conditions that allowed for such catastrophic damage to take place. BP executives were made to testify in front of Congress while President Obama created the National Oil Spill Commission to do further interviewing and investigation. Despite each parties' best efforts at halting and containing the spill, it subsequently spread and had far reaching impacts on the Louisianan coastal region.

The immediate result of the Deepwater Horizon explosion was the introduction of millions of barrels of crude oil into the Gulf ecosystem. Initial reports from governmental officials noted that barrels released per day were a conservative 1,000—although it was later exposed much more seriously that around 80,000 barrels per day were released from the opened cap oil well. Misrepresentation by governmental officials would later prove crucial in the facilitation of attitudinal shifts by coastal citizens of the health, longevity, and safety of the Louisianan coast. Regardless, the sheer magnitude and expansiveness of the spill was something the likes of which environmental policymakers and academic researchers alike had never seen before. Of the 4.9 million barrels that governmental officials had estimated to have been released, only 800,000 barrels, a paltry 16%, was successfully removed from Gulf waters. An image of the Gulf of Mexico produced by the New York Times that fixated the oil spill and tracked its spread throughout the region shows just how expansive

and deadly the spill was.[6] Rough estimates track the spill area to up to 22,500 square miles—a scale that was truly unprecedented before the disaster took place. For context, the Exxon Valdez spill, which occurred in 1989 along the Alaskan coastline, spilled only as much as 30 million gallons of oil and, before the Deepwater Horizon explosion, was considered one of the worst environmental disasters in terms of short and long term effects on ecosystems as a result of oil spillage. Therefore, the expansiveness and scope of the Deepwater spill was problematic from the onset.

Reponses to the Deepwater oil spill in the form of environmental cleanup efforts were widespread and variant. The first question that a majority of the residents of coastal Louisiana communities and BP executives alike considered was who exactly was to pay for the massive, month-long cleanup efforts. On May 2, 2010, President Barack Obama visited the Gulf of Louisiana and vowed to hold BP accountable for the cleanup costs associated with the spill, therefore ridding all coastal residents of another added burden during an already emotionally distressing time. The assurances by President Obama made sense considering the limited involvement by many coastal residents in BP operations, and the lower than average per capita income of Louisianan residents ($21,000-$22,000).[7] As a result and due to mounting political pressure, a majority of the bill was taken on by BP.

Aside from the question of cost, however, residents and community organizers alike struggled with the best methods to first, halt the spread of oil, and second, clean the already existent oil from its situated location.

On May 11, 2010, the State of Louisiana requested emergency authorization from the US Army Corps of Engineers to conceive of and soundly implement measures that would directly halt the flow of oil into and onto various coastal landscapes.[8] Though localized response efforts to halt oil spread were already in place, the emergency authorization of the Army Corps was an indication that that problem was quite far reaching and could not be stopped by local efforts alone: greater assistance was needed. After days of consideration, the eventual proposal included both the building of barrier sand berms on the seaward side of Louisianan barrier islands and the closure of inlets to disallow for further oil progression into waterways with which the inlets had direct access (45). Sand berms—raised deposits of sand along coastal landscapes—were, in theory, meant to block and filter incoming oil. The difficulty of their construction, however, roots itself in the short term reliance of the structures and the question of where to get mass amounts of sand from to build the berms to an adequate height. Inlet restrictions provide a secondary short-term solution that, similar to sand berms, are not entirely effective and are difficult to properly implement. Inlet blockers have the ability to damage ocean floor sediment deposits as well as block oceanic current progressions. The result is a drastically different ecosystem for animals who live in or near inlet waters. Stopping the flow of oil was of the utmost importance, but the subsequent environmental impact of short-term practices was both monetarily costly and potentially environmentally damaging.

Media coverage of the Deepwater explosion varied in both scope and blame. Initial reports that were focused on the factual nature of the disaster—what specifically happened and who were the actors involved—soon thereafter shifted to deeper, more serious questions such as who was to blame, what were the damages, and what could have been done to prevent such an event from occurring. News coverage subsequently proved to be a major factor in framing the Deepwater spill, as it influenced multiple response efforts and the ways in which governmental officials responded to the catastrophe. When looking specifically at President Obama and his handling of the situation, there is evidence that multiple national and state media outlets turned the issue into a political one, rather than keeping a strict focus on environmentalism and ecology. Of five national newspapers studied, 45.5 percent of articles covering the oil spill mentioned President Obama, with more than 75 percent noting some aspect of the Obama administration. The same ultimately holds true for Louisiana state newspapers.

There also appeared to be a systemic and politically motivated misrepresentation of the facts at hand. Initial reports that 1,000 barrels of oil spilled per day soon thereafter shifted to 5,000—with BP claiming that it could equally clean 5,000 barrels of oil per day from Gulf waters.[9] BP, however, continued to downplay the amount of oil that was spewing from the well, as BP spokesman Mark Salt noted the well was actually producing just about 2,000 barrels per day, and clean-up efforts were therefore far more productive than previously thought (91). As the story changed, however,

so did Salt's position, with him suddenly noting that the well never produced 5,000 barrels per day (91). Salt's message along with other high ranking BP officials and an initially weak governmental response contributed to the feelings of unease and confusion amongst coastal residents. Their coastline was changing and as dependents on the region, they obviously deserved to be better informed and in a much more honest manner. The mishandling and false representation of events by BP and governmental officials contributed heightened senses of fear and worry amongst coastal residents whose livelihood was directly linked to the cleanliness of Louisianan waters.

Furthermore, there appeared to be a difference in representation and presentation of the safety of Louisianan waters for fishing and consuming from local, lay sources, and official, governmental sources. Burt,[10] a third-generation shrimper whose family had been trolling the Bayou waters for the better part of seven decades, questioned the safety of the catches he was pulling from the water—and he was not alone. A number of his colleagues observed oil in both the water and in the seafood they inevitably caught.[11] Subsequently, the shrimpers brought their catches to labs where analyses were preformed and showed the presence of toxic substances in and on their catches (281). Jenna, a scientist from the NOAA, collected oyster samples from the waters in which Burt and his peers were shrimping and, although her results were not presented in the article, the context clearly indicates the difference between lay and scientific communities concerning the safety and use of marine environments

for human activity. The shifting attitudes by career fisherman despite multiple insistences by BP executives and governmental officials stating that waters were ultimately safe demonstrates two totally different methodological viewpoints, both of which have their flaws, yet neither of which is one hundred percent accurate. Therefore, the question of misleading or unreliable information persisted in Louisianan coastal communities—and it soon thereafter contributed to attitudinal changes of coastal safety and reliability as a result.

The release of millions of gallons of oil into the Gulf ecosystem was obviously going to have negative implications for marine wildlife and natural vegetative growth along coastal landscapes. Just how drastic the effects are going to be, however, is still a question under consideration almost seven years removed from the tragedy. The result of the introduction of mass amounts of crude oil onto Louisianan marshland ecosystems has become a topic of scientific interest in the years immediately following the explosion. Ecologists, biologists, marine biologists, and oceanologists alike have all researched and published on the Deepwater Horizon spill and its subsequent environmental effects. Studies have conclusively shown that, indeed, as a result of the oil deposits placed directly on fragile marshland ecosystems, the physical embodiment of the coast is changing. A three-and-a-half-year study of vegetative growth in the Barataria Bay, Louisiana marshlands show that the introduction of crude oil into the landscape either severely damaged potential growth of various plant species, or halted it altogether.[12]Although

the authors note that some areas have recovered—demonstrating species-specific resilience—there also exist areas where there have been little recovery, suggesting potential longer term impacts (370). The authors concluded that their research, "clearly shows that the DWH oil spill severely impacted coastal salt marsh vegetation, structure, function and recovery along many heavily oiled shorelines in northern Barataria Bay" (376). As a result of the loss of critical vegetative species, the authors concluded that the shoreline was therefore much more vulnerable to an accelerated erosion process that would subsequently have a greater effect on coastal recession and loss (370). As a result of vegetative loss stemming from the introduction of crude oil onto marshland environments, coastlines became much more susceptible to erosive forces—and their loss is becoming much more quickly noted.

The Deepwater Horizon oil explosion also had adverse effects on marine wildlife populations relating to their sexual productivity, growth, and subsequent safety in regard to human consumption. Although the genetic mutation of marine populations is not necessarily relevant to changing ideas about Louisianan coastlines, it further demonstrates changing *attitudes* about the safety and livelihood of Gulf region as a whole. An article published in the journal *Environmental Science and Technology* in August 2013 explored the relationship between the oil spill and possible effects on wildlife marine populations that came into direct contact with surface level slicks. The authors' findings suggest that organisms in contact with

oil contaminated waters were at heightened risk for DNA damage that could lead to genetic mutations or, "heritable alterations to the community pangemone."[13] The organisms in question were primarily bacterial and other single cell entities, with the authors noting that mutagenic alterations may not become apparent in higher level, more complex organisms for multiple years. Despite mutation in more simple organisms, however, the possibility for genetic mutation in higher level species greatly altered coastal community attitudes toward consuming fish from Gulf waters. Despite scientific findings that strongly suggest marine mutability and subsequent danger, Jane Lubchenco, director of the NOAA (National Oceanic and Atmospheric Administration) "surprisingly" claimed just months after the spill that Louisianan fisheries were safe for consumption. Despite such assurance, however, Bob Canvar, a career oil industry employee, notes in his book *Disaster on the Horizon*, that the only problem with her statement was that nobody believed she was telling the truth.[14] Such distortions in representation coupled with potentially harmful effects from eating seafood from the Louisianan region most certainly contributed to changing attitudes coastal stability and safety.

Aside from academic reports that scientifically demonstrate that the Deepwater spill had various negative effects for vegetative and marine wildlife populations in Louisianan coastal waters, it's also important to consider first-hand accounts of changing environmental landscapes as a result of such. Louisiana communities who had previously worked for BP and

other oil companies stationed in the region eventually noticed the visual and practical impact the spill had on their environment. While investigating the region, author Kael Alford noted broken down, abandoned communities in which once domesticated, now wild, horses were drinking from a local watering hole and had, "adapted to drinking brackish water," as a result of muddied waters that were never cleaned from the spill.[15] Furthermore, upon exploring the marshland region of Pointe-aux-Chenes more extensively, Alford's local guide noted that that a patch of open water they encountered used to be, "marshland full of animals, including mink, otter, muskrat, and deer" (143). Though his guide noted the coastlines had been deteriorating, more recent events had contributed to a much less ecologically inclusive environment (143). So, though scientific reports do hold weight, it is ultimately significant, and also much more emotionally stimulating, to note ways in which oil companies have initially exploited communities of peoples who were thereafter abandoned and left alone after disastrous and monetarily costly events. Clearly, the visual representation of coastlines was changing to local populations who had known them for generations.

Environmental disasters have the ability to significantly alter both individualistic and community based identities of "place"—ways in which people and therefore larger community bases fit into their respective environments or landscapes. The Deepwater Horizon spill provides a case study of exactly that. Environmental place develops over generations but has the ability to be changed both literally and figuratively

overnight, depending on the severity of the disaster under consideration. Vast amounts of research dedicated to studying and analyzing place in the wake of technically produced disasters suggests that psychological stresses induced on both individuals and the greater community undermine cohesiveness and trust.[16] In the wake of the Deepwater explosion, the same inevitably held true. As noted sociologist Kai Erikson argues, the community is a living structure, with individual actors preforming functions of cells so as to ensure the survival of the organism (111). When individuals cells begin to die, so too does the organism. Therefore, distrust, resentment, and general animosity, all factors that have potential to "kill" the figurative organism, become major contributory factors in the development of community disintegration. As a result of this seemingly inevitably shift in coastal conceptions and realities, attitudes of the coastline subsequently shifted to become far more negative. One Louisianan newspaper is especially telling of the shift in place and attitudes of the Louisianan region, as a headline from the *Times-Picayune* read in days following the spill—"I'll Never be The Same" (145).

An important and identifiable community along Louisianan coastal landscapes are the Cajuns—a culturally distinct group who originally descended from the Acadians, the 18th-century French settlers of Canada. After the Acadian expulsion by the British in the Grand Dérangement of 1755, they migrated south and, with the assistance of Spanish land grants, settled territories in Louisiana.[17] As a result, a strong Cajun community developed—generation after generation—

with culturally specific food, music, architecture, dance, language, and even religion (WK9). A New York Times article published by Martha Serpas in July 2010, only a few months removed from the spill, demonstrated the inherent cohesiveness amongst residents of one of Louisiana's most identifiable communities. Serpas herself, not of Cajun descent but having lived in Bayou Lafourche for her entire childhood and adolescent life, notes the familiarity of individuals within the community, "Many extended Cajun families live in clusters… A third cousin might as well be a sister" (WK9). In this regard, the community, though not necessarily immediate blood relatives, demonstrates inherent closeness and familiarity with one another. Resulting effects of the spill, however, tended to disperse even the closest of communities and, as Mayer et al. note in their 2015 article, tended to undermine the social fabrics of communities.[18] The development of Cajun culture, itself directly linked to bayou and coastal waters, was therefore directly threatened by the Deepwater Horizon Oil Spill. It is interesting to note, however, that though Cajun residents were frustrated with the rig explosion, there is an gratitude for the presence of BP in the area. "No one can live here without the wetlands," noted one Cajun resident of the region, "No one can live here without the oil jobs either."[19] Cajun livelihood is therefore directly linked to BP operations in the area and, as a result, collectively, Cajuns demonstrate a lessened attitudinal shift of coastlines and place as a result of the spill. So, because BP and other oil operations have provided the basis of Cajun livelihood, there is, generally, a lessened

emotional impact for this group in comparison to communities and groups who are specifically dependent on methods of livelihood directly affected by the rig's explosion (i.e., fisheries, shrimping industries, oyster harvesters). That is not to say, however, the fabrics of the community were not disrupted or displaced. In considering compensation resulting from the spill, Meyer et al. suggest that even immediate efforts tended to undermine community cohesiveness and contributed to community corrosion via feelings of jealousy, envy, and competition.[20] Their study, an inclusive view of multiple communities affected by the spill, surely in part included portions of close knit Cajun populations. Therefore, it seems as if no community, not even those closest with one another, were void of communally corrosive feelings resulting from the Deepwater explosion.

An important indicator of the changing attitudes of the Louisianan coastline was the shift in confidence in the economic structure of the region. Fishing, both commercial and tourist, is obviously a massive part of not only Louisianan coastal communities, but the greater Gulf community as well. The closure of mass amount of fisheries on the Louisiana coast severely altered the economic landscape of the region, at least in the short-term (146). A majority of fishermen who had operated in the region were suddenly asked to redefine their careers, seemingly overnight, and operate instead as slick clean-up crews. Those that did were rewarded, but those that did not have the technological capabilities to do so ultimately collapsed (147). The spill therefore ushered a changing fishing culture where

fishing, ironically, was no longer at the forefront of the industry's efforts. Even so, once the oil was partially or entirely clean, there was no assurance that fishing would still be a profitable industry. Therefore, the explosion created the mass dispersion of career fishermen from the region who, some of which, had come from families who practiced the art for generations. The short-term collapse of the Louisianan fishing industry surely contributed to the changing attitudes of the Louisianan coastline, as it was therefore seen as a less economically practical and sustainable career investment, even for those who had spent decades in the region.

One of the more notable impacts of the Deepwater spill was the subsequent effect it had on the emotional strength of Louisianan coastal citizens. As one New Orleans resident responded in the wake of the oil spill, "The oil spill may be the proverbial straw. We ARE physically, financially, and emotionally exhausted" (171). Indeed, the heightening sense of uncertainty amongst coastal Louisiana residents was surely widespread throughout the Gulf region. Even so, the implication for further damage as a result of impending hurricanes and other powerful weathering forces created greater senses of anxiety for those who called the region home. Survey responses of Gulf residents, including those from Louisiana, Florida, and Mississippi, indicated that a fair share of respondents were sad and depressed as a result of the spill (173). The Deepwater spill therefore had adverse effects on the emotional stability of the region- shifting ways in which people believed they could viably depend on the region as a source of emotional stability. The oil spill also had

adverse effects on familial structures. In an article published in 2001, Mark Davis, an activist for The Coalition to Restore Coastal Louisiana, related the disappearing coastlines to deteriorating familial and social structures: "It's something anyone can see. As coastal Louisiana disappears, alcoholism increases. Families break down. We project the loss of fifty thousand jobs."[21] In this context, I am relating casual, non-technical coastline deterioration with processes that accelerate such. Following the logic Davis is using, if casual coastline recession causes familial breakdowns, imagine the negative familial effects caused by the introduction of mass amounts of oil to the environment—a toxic substance that has been scientifically proven to accelerate the coastal recession process. Due to the Deepwater Horizon explosion, emotional physiologies became disrupted—which subsequently could have negative effects on familial and or social relationships.

The Deepwater Horizon oil spill ushered in changing attitudes about the malleability and safety of coastlines hardest hit by the disaster. Pre-spill attitudes of the Louisianan coastline, and of the Gulf of Mexico in general, were relatively positive. Aside from regular amounts of pollution that surely any coastline sees, Louisiana was no different from the rest in that regard. After the spill, however, with the subsequent spread of unrefined oil throughout the Gulf Region, wildlife populations, both marine and vegetative, were seriously affected. As a result, the physical Louisianan coastline ultimately changed, and there soon after, the attitudinal change of residents living in coastal communities

followed. Almost six years after, the residents of the region are still feeling the economic and emotional impacts. Devoted corporate funds have done little to help re-establish a sense of coastal identity that had taken generations to develop. It remains to be seen if the Louisianan coastline will ever recover from one of the worst environmental disasters in recent human history, but if the Deepwater Horizon spill has taught any lessons, it should be that manipulating the environment for human profit can sometimes have utterly disastrous effects.

Notes

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